

REVISION OF THE RECENT RHIPIDOGLOSSATE AND
DOCOGLOSSATE MOLLUSCA OF NEW ZEALAND.

BY PROFESSOR F. W. HUTTON, F.G.S.

Order. RHIPIDOGLOSSA.

Family. NERITIDÆ.*

Genus. NERITA. Linné.

NERITA SATURATA. Hutton (1884); *N. atrata* (variety of) Chemnitz, Conch. Cab. V., p. 296; *N. atrata*, Lamarck, Anim. sans. Vert., VIII., p. 603, Reeve Conch. Icon., fig. 16 [not of Chemnitz]; *N. nigra*, Gray in Dieffenbach's New Zealand, ii., p. 240 (1843) [not of Lamarck].

Habitat.—Bay of Islands to Wellington. Found also in Australia and Tasmania.

Shell finely spirally grooved; blue-black, or occasionally olive black; columella white.

I cannot agree with Dr. von Martens and Mr. Tenison-Woods that this shell is identical with *N. punctata* (Quoy and Gaimard). *N. punctata*, according to Quoy, is from the Mauritius, and is probably the same as *N. nigra* of Lamarck. It is not from Australia, as stated by Dr. von Martens; nor from South America, as stated by Mr. Tenison-Woods in the Pro. Roy. Soc., Tasmania, 1877, p. 38.

Family. TURBIDÆ.†

* The following species is omitted as not really inhabiting New Zealand: *Neritina Zealandica*, Reclus. *Habitat* unknown.

† The following are omitted as not really inhabiting New Zealand:—

Turbo undulatus, Chemnitz; inhabits Australia
Turbo stramineus, Martyn; inhabits Australia
Turbo torquatus, Gmelin; inhabits Australia
Turbo singularis, Solander; inhabits Australia
Turbo tajonkairii, Deshayes; inhabits Indian Archipelago
Turbo nove-Zelandiæ, Chemnitz; *habitat* unknown
Phasianella australis, Gmelin; inhabits Australia.

Genus. *TURBO*. Linné.

TURBO SMARAGDUS. Martyn, Univ. Conch., pl. 73, 74 (1784); Chemnitz, Conch. Cab. V., fig. 1815 and 1816; Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 219, pl. 60, fig. 6-8; Gray, Figs. Moll. Anim., pl. 38, fig. 1; Reeve, Conch. Icon., fig. 13.

Habitat.—Auckland to Dunedin.

Shell blackish green covered with a brown epidermis; inside white, the mouth and operculum stained with green. Outer surface of operculum smooth.

Variety. *TRICOSTATUS*. Hutton (1884).

Habitat.—Wellington to Dunedin.

Body whorl, with three spiral ribs.

The dentition is figured by Troschel in Gebiss den Schnecken II., pl. 19, fig. 1, and also in the Trans. N.Z. Institute, XIV., pl. 7, fig. c.

Sub-genus. *Modelia*. Gray.

TURBO GRANOSUS. Martyn, Univ. Conch. Trochus, pl. 37 (1784); *T. rubicundus*, Reeve, Conch. Icon., fig. 11.

Habitat.—Dunedin and Foveaux Straits; Auckland Islands; Chatham Islands.

Shell with spiral moniliform ribs, the umbilical region impressed, callous. Reddish purple varied with white.

The operculum is figured by Adams in Genera of Recent Mollusca III., pl. 43, fig. 5A-5B. The dentition is figured by Hogg in the Trans. Micro. Soc., 1866, pl. 11, fig. 51.

Sub-genus *Callopoma*. Gray.

TURBO SHANDI. Hutton. Catalogue Marine Moll. of N.Z., p. 35 (1873).

Habitat.—Chatham Islands.

Shell with three smooth spiral ribs near the periphery, with two or three nodulous ribs both above and below. White spotted with reddish or purplish brown.

As the operculum and dentition are unknown, the position of this species is doubtful.

Genus. COOKIA. Lesson.

COOKIA SULCATA. Martyn, Univ. Conch. plate 35 (1784); *Trochus cookii*, Spengler Journ. Naturforscher IX., p. 155, pl. 3, fig. 5-6 (1776); Chemnitz Conch. Cab. V., fig. 1540 (1781); Quoy and Gaimard Voy. Astrolabe, Zool. III., p. 224, pl. 60, figs. 19-23; Grays Figs. Moll. Anim. I., pl. 40, fig. 2; *cookii nobilis*, Lesson, Illus. Zool., pl. 15 (1832).

Habitat.—North Ireland and the Southern shores of Cook's Straits; Chatham Islands.

Whorls rounded, with oblique rough imbricating laminae.

Variety DAVISII. Stowe, Trans. N.Z. Institute IV., p. 218 (1871).

Habitat.—Blind Bay.

Whorls keeled.

The operculum is figured by Quoy and by Adams in Genera of Recent Mollusca III., pl. 45, figs. 3A-3B. The dentition is figured in Trans. N.Z. Institute XV., pl. 14, fig. P.

Genus. IMPERATOR. Montfort.

IMPERATOR IMPERIALIS. Chemnitz (Trochus) Conch. Cab. V., pl. 13, figs. 1714-1715 (1781); Quoy and Gaimard Voy. Astrolabe, Zool. III., p. 226, pl. 61, figs. 1-4; Gray Figs. Moll. Anim. I., pl. 40, fig. 1. *Trochus heliotropium*, Martyn, Univ. Conch., pl. 30 (1784); Reeve, Conch. Icon. Trochus, fig. 30. *Imperator aureolatus*, Montfort, Conch. Syst. (1810).

Habitat.—Hauraki Gulf and Foveaux Straits.

Periphery with recurved triangular spines. The operculum is figured by Quoy; the dentition by Hogg in the Trans. Micro. Soc., 1866, pl. 11, fig. 46.

Family. LIOTIDÆ.

Genus. CYCLOSTREMA. Maffyat.

CYCLOSTREMA FLUCTUATA. Hutton, N.Z. Journal of Science I., p. 477 (1883); Trans. N.Z. Institute XVI., p. 215.

Habitat.—Foveaux Straits.

Shell minute, spirally grooved, narrowly umbilicated; yellowish white with irregular bands of pale brown; peristome not continuous. As the dentition of this species is unknown, its generic position is doubtful. It may belong to *Adeorbis*.

Family. ROTELLIDÆ.

Genus. ROTELLA. Lamarck.

ROTELLA NEOZELANICA. Hombron and Jacquinot, Voy. Pole Sud., Zool. V., p. 53, pl. 14, fig. 5-6 (1854); Reeve Conch. Icon., fig. 11.

Habitat.—Auckland to Dunedin.

Variable in colour; yellowish white with purple or chestnut rays, sometimes brownish pink.

The operculum and dentition are unknown.

Family. TROCHIDÆ.*

Genus. EUCHELUS. Philippi.

Sub-genus. *Huttonia*. Kirk.

Columella with a deep notch instead of a tooth.

EUCHELUS BELLUS. Hutton, Cat. Marine Moll. of N.Z., p. 37 (1873).

Habitat.—Chatham Islands,

* The following are omitted as not really inhabiting New Zealand:—

- Trochus inaequalis*, Martyn; inhabits Australia
- Trochus annulatus*, Martyn; inhabits Australia
- Trochus caniliculatus*, Martyn; inhabits Australia
- Trochus gibberosus*, Chemnitz; inhabits Australia
- Trochus niger*, Chemnitz; not recognised
- Trochus lugubris*, Gmelin; not recognised
- Polydonta tricarinata*, Lamarck
- Clanculus variegatus*, Adams; inhabits Australia
- Clanculus floridus*, Philippi; inhabits Australia
- Thalotia conica*, Gray; inhabits Australia
- Thalotia pulcherima*, Wood; inhabits Australia
- Zizyphinus scitulus*, Adams; inhabits Australia
- Zizyphinus doliarius*, Chemnitz
- Cantharidus jucundus*, Gould; *habitat* unknown
- Trochocochlea tenuata*, Quoy and Gaim.; inhabits Australia
- Labio zebrinus*, Philippi; inhabits Australia
- Labio tessellatus*, Chemnitz; inhabits Mediterranean
- Labio sulcata*, Wood
- Labio scorpia*, Gray; not described.

Shell imperforate; pinkish white varied with darker, interior white.

Variety. IRICOLOR. T. W. Kirk, Trans. N.Z. Inst. XIV., p. 282 (1882).

Habitat.—Auckland to Waikanae.

Granules coarser; dirty chocolate, interior bluish green.

The operculum and dentition are figured in Trans. N.Z. Institute XV., pl. 14, fig. 1.

EUCHELUS HAMILTONI. T. W. Kirk, Trans. N.Z. Institute XIV., p. 283 (1882).

Habitat.—Wellington.

Shell perforate; granules very fine. Pinkish white with spots of darker in diagonal rows.

Genus. TROCHUS. Linné.

Sub-genus. *Anthora*. Gray.

TROCHUS VIRIDIS. Gmelin, from Chemnitz Conch. Cab. V., figs. 1643-1644 (1781); Reeve Conch. Icon., fig. 79; *Polyodonta tuberculata*, Gray in Dieffenbach's New Zealand II., p. 239 (1843); Voy. Erebus and Terror, Moll., pl. 1, fig. 6. *Trachus acinosus*, Gould, Pro. Boston Soc., Nat. Hist. III., p. 57 (1848). *Trochus fulvilabris*, Homb. and Jacq., Voy. Pole Sud., Zool. V., p. 56, pl. 14, figs. 14-16 (1854). *Tr. tritonis*, Adams, Pro. Zool. Soc. of London, 1854, p. 132.

Habitat.—Auckland to Dunedin.

Shell with four nodulose spiral ribs on each whorl. Colour purplish brown, the base pale brown.

The operculum and dentition are figured in the Trans. N.Z. Institute XV., pl. 14, fig. κ.

Sub-genus. *Cælotrochus*. Fischer.

TROCHUS TIARATUS. Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 256, pl. 64, figs. 6-11 (1834); Gray Figs. Moll. Anim. I., pl. 40, fig. 3. *Polyodonta elegans*, Gray, in Yate's New Zealand, p. 309 (1835).

Habitat.—Auckland to Dunedin.

Shell with six, sub-equal, nodulose spiral ribs on each whorl above the periphery. Colour purplish white, spotted with darker both on the spire and on the base.

The dentition is figured in the Trans. N.Z. Institute XIV., pl 7, fig. n.

TROCHUS CHATHAMENSIS. Hutton, Cat. Marine Moll. of N.Z., p. 36 (1873).

Habitat.—Wellington (T. W. Kirk); Chatham Islands.

Whorls spirally striated and with a thick sub-nodulose keel at the periphery, above which they are obliquely plaited; suture margined. Colour white with purplish red markings, the base spotted with red.

Genus. ZIZYPHINUS. Gray.

A. whorls flattened.

ZIZYPHINUS DECARINATUS. Perry, Conchology, Trochus, pl. 47, fig. 2 (1811); *Z. Cunninghami*, Gray in Griffith's Animal Kingdom, Mollusca, pl. 1, fig. 7; Reeve, Conch. Icon., fig. 6.

Habitat.—Cook's Straits to Auckland.

Shell trochiform, thin; about ten spiral moniliform lines on the body whorl above the mouth; umbilical region with a large callosity; lower surface nearly white. Periphery angled.

The operculum and dentition are unknown.

ZIZYPHINUS SELECTUS. Chemnitz, Conch. Cab. XI., figs. 1896-97 (1789); Reeve, Conch. Icon., fig. 1. *Trochus pellucidus*, Valenciennes, Voy. de la Venus, Moll., pl. 4, fig. 2.

Habitat.—Auckland and Cook's Straits.

Shell trochiform, thin; about ten spiral moniliform lines on the body whorl above the mouth, sometimes with smaller smooth lines between them; umbilical region with a small callus. Base with distant fine sub-moniliform spiral striæ; pale with distant elongated spots. Periphery rounded.

The dentition is figured in Trans. N.Z. Institute XV., pl. 14, fig. L.

ZIZYPHINUS SPECTABILIS. Adams, Proc. Zool. Soc. of London, 1854, p. 37, pl. 27, fig. 7; Reeve, Conch. Icon., fig. 5.

Habitat.—Auckland; Auckland Islands (Martens).

Shell trochiform, rather solid; about six spiral moniliform ribs on the body whorl above the mouth; umbilical region without any callus. Base with rather coarse moniliform spiral ribs, and round spots.

The dentition is not known.

B. whorls convex.

ZIZYPHINUS GRANATUM. Chemnitz, Conch. Cab. V., figs. 1654-55 (1780). *Trochus tigris*, Martyn, Univ. Conch., pl. 75 (1784); Reeve, Conch. Icon., fig. 4.

Habitat.—Auckland to Cook's Straits, Chatham Islands.

Shell sub-trochiform, periphery rounded, rather solid. About 18 to 25 fine-spiral moniliform ribs on the body whorl above the mouth. Umbilical region with a small callosity, the base similar to the upper surface.

The dentition is unknown.

ZIZYPHINUS PUNCTULATUS. Martyn, Univ. Conch. pl. 37, (1784) after Spengler (1776); Reeve, Conch. Icon., fig. 95. *Turbo diaphanus* Lamarek, An. sans Vert.; Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 254, pl. 64, figs. 1-5; Gray Figs. Moll. Anim. I., pl. 40, fig. 1. *Turbo grandineus* Valenciennes Voy. de la Venus, Zool. pl. 4, fig. 4.

Habitat.—Cook's Straits to Dunedin.

Shell turbate, rather solid, suture impressed. About ten or twelve spiral moniliform ribs on the body whorl above the mouth. Umbilical region without any callus, the base similar to the upper surface.

The dentition is figured in the Trans. N.Z. Institute, XIV., pl. 8, fig. II.

Genus. CANTHARIDUS. Montfort.

CANTHARIDUS IRIS. Gmelin, after Walch in *Naturforscher* IV., p. 42, pl. 1, figs. 5-6 (1774). *Trochus iridis*. Chemnitz Conch. Cab. V., figs. 1522-23 (1781). *Trochus opalus*, Martyn, Univ. Conch. pl. 24 (1784). *Canth. zealandicus*, Adams, Pro. Zool. Soc. of London, 1851, p. 169.

Habitat.—Auckland to Cook's Straits, Chatham Islands.

Shell elevated, smooth, spirally streaked; periphery more or less angled. Pinkish purple with longitudinal zig-zag reddish purple markings.

The young shell is perforated but the perforation gets covered over. The dentition is not known.

CANTHARIDUS PURPURATUS. Martyn, Univ. Conch. pl. 68, fig. 2 (1784). *Trochus elegans*, Gmelin in Linné Syst. Nat. 13th edition. *Phasinella rubella*, Menke, Synops. Moll. (1530.) *Trochus texturatus*, Gould, Pro. Bost. Soc. Nat. III., p. 90, (1848). *Trochus pallidus*, Hombron and Jacquinot, Voy. Pole Sud., Zool. V., p. 55, pl. 14, figs. 12-13, (1854).

Habitat.—Auckland to Banks' Peninsula.

Shell elevated, imperforate, spirally ribbed and striated, the surface roughened with growth line. Pinkish white, streaked or spotted with pinkish brown.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 14 fig. o.

CANTHARIDUS PRUNINUS. Gould, Otia Conch., p. 55, (1846). *Trochus episcopus*, Hombron and Jacquinot, Voy. Pole Sud., Zool. V., p. 55, pl. 14, figs. 9-11, (1854.)

Habitat.—Auckland Island and Campbell Island.

Shell elevated, imperforate, suture impressed; whorls finely and equally spirally ribbed. Blackish purple, columella and aperture white or reddish, interior highly iridescent.

The dentition is not known.

CANTHARIDUS TENEBROSUS. Adams, Proc. Zool. Soc. of London 1851, p. 170. *Gibbula plumbea*, Hutton, Jour. de Conch., 1878, p. 3.

Habitat.—Throughout New Zealand.

Shell more or less elevated, imperforate; whorl spirally ribbed. Bluish or purplish black, the grooves lighter; columella white, margin of the aperture dark purple, interior pearly.

The dentition is figured in Trans. N.Z. Inst. XIV., pl. 7, fig. l.

Variety. *HUTTONII*. Smith, Jour. Linn. Soc. of London, Zool. XII., p. 558 (1876).

Habitat.—Throughout New Zealand.

More depressed than the last, and the spiral sculpture finer.

The dentition is figured in Trans. N.Z. Inst. XIV., pl. 7, fig. m.

CANTHARIDUS RUFOZONA. Adams, Proc. Zool. Soc. of London, 1851, p. 170.

Habitat.—Auckland.

Shell imperforate, spirally ribbed; about eleven ribs on the body whorl, five of which are above the periphery; columella with a blunt tooth, white; the ribs purplish red; interior white.

Dead specimens from Auckland are referred with doubt to this species. It is distinguished by the blunt tooth on the columella.

The dentition is unknown.

CANTHARIDUS PUPILLUS. Gould, Proc. Bost. Soc. Nat. Hist. III., p. 91, (1848); United States Exploring Expedition, XII., p. 186, Atlas, fig. 208.

Habitat.—Bank's Peninsula to Dunedin.

Shell depressed, or sometimes more elevated, imperforate or narrowly perforated; whorls spirally ribbed. Dark brown, or greenish brown with brown and reddish markings; margin of the aperture greenish brown.

A very variable shell, smaller than *C. tenebrosus*. The dentition is figured in the Trans. N.Z. Inst. XIV., pl. 7, fig. κ.

CANTHARIDUS SANGUINEUS. Gray in Dieffenbach's New Zealand, II., p. 238, (*Gibbula*), 1843; Voy. Erebus and Terror, Moll., pl. 1, fig. 12.

Habitat.—Auckland to Wellington, Chatham Islands.

Shell imperforate spirally grooved. Pinkish white, with red spots on the ribs, or with red flexuous longitudinal markings; interior and mouth white.

Variety. *CÆLATUS*. Hutton, (1884).

Habitat.—Foveaux Straits.

Smaller but more deeply ribbed and the grooves wider.

I have seen dead specimens only. The dentition is unknown.

CANTHARIDUS DILATATUS. Sowerby Proc. Zool. Soc. of London, 1870, p. 251, (*Eleuthns*).

Habitat.—Hokianga, Auckland.

Shell smooth, spirally striated; whorls flattened; columella without any tooth. Reddish brown, the interior greenish blue and highly iridescent.

The dentition is unknown.

CANTHARIDUS SIMULATUS. Hutton, Cat. Marine Moll. of New Zealand, p. 36, (1873).

Habitat.—Chatham Islands.

Shell smooth, finely spirally striated; whorls convex. Pink or pinkish brown, generally with white markings on the spire; interior bluish white, iridescent.

Dead specimens only. The dentition is unknown.

Genus. *MARGARITA*. Leach.

I put the following three species into this genus with great hesitation. Perhaps they belong to *Gibbula*, but the umbilicus is narrow.

MARGARITA ANTIPODA. Hombron and Jacquinet, Voy. Pole Sud., Zool. V., p. 58, pl. 14, figs. 26-28 (1854).

Habitat.—Auckland Islands.

Shell small, iridescent, with transverse bands of greenish on the upper part; umbilicus almost covered.

I have not seen this species. The dentition and operculum are unknown.

MARGARITA ROSEA. Hutton, Cat. Marine Moll. of New Zealand, p. 36 (1873).

Habitat.—Stewart's Island; Campbell Island.

Whorls faintly spirally striated; very narrowly umbilicated. Pinkish white with three or four narrow pink spiral bands and some purplish spots on the body whorl.

The dentition and operculum are unknown.

MARGARITA FULMINATA. Hutton, Cat. Marine Moll. of New Zealand, p. 36, (1873).

Habitat.—Auckland to Wellington, Chatham Islands.

Shell smooth, without spiral striæ except on the base; umbilicus small. Pink, purplish, or olivaceous, usually with markings especially at the suture.

Dead shells only. The dentition and operculum are unknown.

Genus. GIBBULA. Risso.

GIBBULA OPPRESSA. Hutton, Jour. de Conch., 1878, p. 34.

Habitat.—Auckland.

Whorls flattened in the middle and more or less keeled; closely spirally ribbed. Dark purplish black not shining. Operculum many whorled.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 14, fig. M.

GIBBULA NITIDA. Adams and Angas, Proc. Zool. Soc. of London, 1864, p. 36. *G. inconspicua*, Hutton, Cat. Marine Moll. of New Zealand, p. 36, (1873).

Habitat.—Hokianga, Auckland to Wellington.

Shell polished, finely spirally striated. Greenish yellow with longitudinal undulating purplish brown streaks. Operculum many whorled.

The dentition is figured in Trans. N.Z. Institute XV., pl. 14, fig. N.

Genus. BANKIVIA. Beck.

BANKIVIA VARIANS, Beck, in Krauss' Sudafric Moll. (1848).

Habitat.—Cook's Straits. Found also in Tasmania and Australia.

Variable in colour, white, purple, pink, or black, plain or banded, sometimes with longitudinal undulating lines.

The animal is unknown as also is the dentition and operculum.

Genus. MONILEA. Swainson.

MONILEA EGENA. Gould (*Solarium*) Proc. Bost. Soc. Nat. Hist. III., p. 84, (1868), U. S. Expl. Expd. XII., p. 116, Atlas, fig. 223. *Monilea zealandica*, Hutton, Cat. Marine Moll. of New Zealand, (1873). *Margarita zealandica*, Sowb. in Reeve's Conch., Icon., fig. 17.

Habitat.—Bay of Islands.

Some of the spiral ribs are subgranular. Brownish white with longitudinal flexuous bands of brownish purple.

The dentition and operculum are unknown.

Genus. MONODONTA. Lamarck.

Trochocochlea Klein.

Sub-genus. *Diloma*. Philippi.

MONODONTA ÆTHIOPS. Gmelin, after Chemnitz, Conch. Cab. V. figs. 1820-1821 (1781). *M. reticularis*, Gray in Woods Ind. Test., Suppl. (1828), and in Diffenbach's New Zealand, II., p. 238. *Trochus zealandicus*, Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 257, pl. 64, figs. 10-11 (1834); Gray, Figs. Moll. Anim. I., pl. 40, fig. 9. *Labio concolor*, Adams, Proc. Zool. Soc. of London, 1851, p. 180.

Habitat.—Throughout New Zealand, Chatham Islands, Auckland Islands.

Shell rough; whorls distantly spirally grooved and obliquely striated with growth lines; four or five grooves on the body whorl above the periphery. Colour brownish purple, when rubbed purple, spirally tessellated with white; mouth purplish black.

The dentition is figured by Troches in *Das Gebiss den Schnecken*, II., taf. 23, fig. 3; and in the *Trans. N.Z. Institute*, XV., pl. 15, fig. A.

MONODONTA NIGERRIMA. Chemnitz, *Conch. Cab.* V., pl. 185, fig. 1848 (1780); *Turbo quoyi*, Keiner.

Habitat.—Banks' Peninsula to Dunedin, Chatham Islands, Auckland Islands.

Shell smooth, polished; whorls rather closely spirally grooved; eight or nine grooves on the body whorl above the periphery. Purplish black, interior highly iridescent, mouth black; columellar lip greenish at the base.

This species is apparently the same as *Trochus araucanus*, D'Orbigny, from South America. The dentition is figured in *Trans. N.Z. Inst.* XV., pl. fig. B.

MONODONTA MELALOMA. Menke, *Molluscorum Novæ Hollandiæ*, No. 50, p. 14, (1843). *Labio carrosa*, Adams, *Proc. Zool. Soc. of London*, 1851, p. 180; *Diloma hectori*, Hutton, *Cat. Marine Moll. of New Zealand*, p. 37, (1873); *T. chloropoda*, Tate.

Habitat.—Banks' Peninsula to Dunedin. Found also in South and West Australia.

Shell smooth, or with low spiral ribs, never polished. Purplish, body whorl often yellow; mouth yellowish with a thin purple ring inside.

Our shells appear to be thinner, and the interior less grooved than Australian specimens, but there is no other difference. A shell in the Canterbury Museum named *Chlorostoma atra*, Lesson, from Chili appears also to be the same species. The dentition is figured in *Trans. N.Z. Institute*, XV., pl. 15, fig. D.

Variety. UNDULOSA. Adams, *Proc. Zool. Soc. of London*, 1851, p. 182; *Voy. Erebus and Terror*, *Moll.* pl. 1, fig. 15. *Trochus attritus*, Hombron and Jacquinot, *Voy. Pole Sud. Zool.* V., p. 57, pl. 14, figs. 19-20, (1854).

Habitat.—Banks' Peninsula to Dunedin.

Yellowish with longitudinal undulating lines of dark purple, or altogether purple. Mouth yellow, articulated with purplish black.

T. bruniensis, Petterd, from Tasmania is closely allied.

Variety. PLUMBEA. Hutton, (1883).

Habitat.—Banks' Peninsula to Dunedin, Campbell Island.

Dark purple, mouth black.

The dentition is figured in the Trans. N.Z. Institute, XV., pl. 15, fig. E.

Variety. GUTTATA. Hutton (1884).

Habitat.—Nelson.

Dark purple, usually spotted with white; mouth black; columellar lip greenish at the base; interior highly iridescent, markedly grooved.

This variety looks like a hybrid between *M. nigerrima* and *M. melanoloma*.

MONODONTA SUBROSTRATA. Gray in Yates' New Zealand, (1835), and in Dieffenbach's New Zealand, II., p. 238 (1843); Voy. Erebus and Terror, Moll. pl. 1, fig. 14.

Habitat.—Auckland to Tauranga. On *Zostera marina*.

Shell with sub-nodulose spiral ribs, which are distant on the upper surface and closer on the base. Yellowish with undulating longitudinal purple lines; mouth yellow, more or less marked with purple.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 15, fig. G.

MONODONTA SULCATA. Wood. *Trochus cingulatus*, Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 259, pl. 64, figs. 16-20 (1834) [not of Brocchi]; Gray Figs. Moll. Anim. I., pl. 40, fig. 10; *Trochus gaimardi*, Philippi in his new edition of Chemnitz.

Habitat.—Cook's Straits to Dunedin.

Shell with three nodulose spiral ribs and raised lines between on the upper surface of the body whorl; about four closer ribs on

the base. Smooth ; brownish black with minute yellow spots ; mouth brownish black.

Quoys figure is bad, but it must be intended to represent this species. The dentition is unknown.

MONODONTA EXCAVATA. Adams, and Angas, Proc. Zool. Soc. of London, 1864, p. 37.

Habitat.—Manukau Heads, Auckland.

Shell small smooth, shining ; not spirally marked, except on the base. Brown, mottled with yellowish white, but variable in colour.

Referred with some doubt to this species as Adams' description does not apply very well. The shell is depressed, the base concave, and the periphery sharply angled. The dentition is figured in Trans. N. Z. Institute, XV., p. 15, fig. F.

Sub-genus. *Latona*. Hutton.

Shell as in *Diloma* but perforated.

MONODONTA MIMETICA. Hutton, Jour. de Conch., 1878, p. 32.

Habitat.—Auckland.

Shell purple with oblique slightly waved lines or spots of white ; columella more or less stained with green.

The dentition is unknown.

Diloma australis, Tenison-Woods, (Pro. Roy. Soc. Tas. 1876, p. 145), appears to be closely allied.

Family. PLEUROTOMARIIDÆ.

Genus. SCISSURELLA. D'Orbigny.

SCISSURELLA MANTELLI. Woodward, Proc. Zool. Soc. of London, 1859, p. 202, pl. 46.

Habitat.—North Island.

I have not seen this species.

Family. STOMATELLIDÆ.

Genus. MINOS. Hutton.

Shell ear-shaped, regular, umbilicated; the spire small; aperture very large and oblique, not nacreous, the lips thin. Operculum horny multispiral. Dentition resembling that of *Cantharidus*.

Founded on *Fossarina petterdi*, (Brazier), from Tasmania.

MINOS RIMATA. Hutton, (1884). *Adeorbis petterdi*, Hutton, Trans. N.Z. Inst. XIV., p. 132, [not of Brazier].

Habitat.—Waiwera, near Auckland.

Shell small, yellowish white, with oblique brown spots; the umbilicus very narrow.

Differs from *M. petterdi* in its much narrower umbilicus. The operculum and dentition are not known.

Family. HALIOTIDÆ.*

Genus. HALIOTIS. Linné.

HALIOTIS IRIS. Martyn, Univ. Conch. pl. 61, (1784); Reeve, Conch. Icon., fig. 37.

Habitat.—Throughout New Zealand, Chatham Islands, Auckland Islands.

The outer lip is continuous and produced beyond the body whorl; the columella does not form a spiral.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 15, fig. H.

HALIOTIS RUGOSO-PPLICATA. Chemnitz, Conch. Cab. X., p. 311, fig. 1604 (1788); Reeve, Conch. Icon., fig. 7. *H. plicata*, Karsten, Museum Leskeanum, (1789). *H. australis*, Gmelin, in 13th edition of Linné's Syst. Nat. *H. cruenta*, Reeve, Pro. Zool. Soc. of London, 1846, p. 59.

* The following species are omitted as not really inhabiting New Zealand:—

- Haliotis navosa*, Martyn; inhabits Australia
Haliotis albicans, Quoy; inhabits Australia
Haliotis cunninghami, Reeve, inhabits Australia
Haliotis stomaticiformis, Reeve; inhabits Australia
Haliotis virginea, Chemnitz; inhabits Western Africa
Haliotis pulcherima, Deshayes; Habitat unknown
Haliotis novæ-zealandiæ, Reeve; Habitat unknown.

Habitat.—Throughout New Zealand, Chatham Islands, Auckland Islands. Found also in South Australia.

The posterior portion of the outer lip does not project beyond the body whorl; columella forming a spiral; exterior of shell obliquely plicated and crossed by rough striæ.

The dentition is not known.

HALIOTIS GIBBA. Philippi, *Abbild. und Besch. Conch.* [Haliotis, pl. IX., fig. 2, (1848); Reeve *Conch. Icon.* fig. 42; Voy. Erebus and Terror, *Moll.* pl. 1, fig. 16.

Habitat.—Throughout New Zealand, Chatham Islands.

Posterior portion of the outer lip not projecting beyond the body whorl; columella much curved but hardly spiral; exterior of shell longitudinally grooved and irregularly transversely plicated.

Variety HUTTONI. Filhol, *Comtes Rendus*, XCI., p. 1094. (1880)

Habitat.—Campbell Island.

Ribs stronger and slightly undulated; apex less anterior.

The dentition is not known.

Family FISSURELLIDÆ.

Genus. FISSURELLA. Lamarck.

FISSURELLA SQUAMOSA. Hutton, *Cat. Marine Moll. of New Zealand*, p. 42, (1873).

Habitat.—Foveaux Straits.

Oblong with strong radiating scaly ribs. Exterior brownish, the interior white.

The dentition is not known.

Sub-genus. *Lucapina*. Gray.

Apical opening surrounded by a callus.

FISSURELLA MONILIFERA. Hutton, *Cat. Marine Moll. of New Zealand*, p. 42. (1873).

Habitat.—Foveaux Straits.

With radiating moniliform ribs, and obscurely cancellated.

The dentition is not known.

Genus. EMARGINULA. Lamarck.

EMARGINULA STRIATULA. Quoy and Gaimard, Voy. Astrolabe. Zool. III., p. 332, pl. 68, fig. 21-22, (1834); Reeve Conch. Icon. fig. 47.

Habitat.—Cook's Straits to Foveaux Straits.

Shell longitudinally and transversely finely ribbed.

The dentition is not known.

EMARGINULA EMARGINATA. Blainville, Malacologie, p. 48, fig. 2. (1825); *E. australis*, Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 328, pl. 68, figs. 11-12, (1834); Reeve, Conch. Icon. fig. 19.

Habitat.—Lyttelton.

Found also in Australia and Tasmania.

Longitudinal ribs rough, alternately large and small.

The dentition is not known.

E. tenuicostata, Sowb. is said by Mr. Justice Gillies to occur in New Zealand. It is closely cancellated, and pointed with green bands or brown rays.

Genus. PARMOPHORUS. Blainville.

PARMOPHORUS UNGUIS. Linné (Patella); Reeve, Conch. Icon. Scutus, fig. 5. *Patella ambigua*, Chemnitz, Conch. Cab. XI., fig. 1918.

Habitat.—Auckland to Dunedin.

The length of the shell is equal to twice the breadth.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 15, fig. 1.

Sub-genus. *Tugalia*. Gray.

PARMOPHORUS INTERMEDIUS. Reeve, Proc. Zool. Soc. of London, 1842, p. 50. *T. elegans*, Gray in Dieffenbach's New Zealand, II., p. 240, (1843. *T. cinerea*, Sowb. Thes. Conch. III., p. 221, pl. 249, figs. 15-16; Reeve, Conch. Icon. fig. 5, [not of Gould]. *T. ossea*, Sowb. loc. cit. fig. 15.; Angas, Proc. Zool. Soc. of London, 1876, p. 219, [not of Gould]. *T. australis*, Tenison-Woods, Proc. Roy. Soc. of Tasmania, 1877, p. 21.

Habitat.—Throughout New Zealand, Chatham Islands. Found also in New South Wales, Victoria, and Tasmania.

The dentition is unknown.

Order. DOCOGLOSSA.

Family. ACMÆIDÆ.*

Genus. ACMÆA. Eschscholtz.

Sub-genus. COLLISELLA. Dall.

A. Apex of the shell sub-central.

ACMÆA CORTICATA. Hutton, Man. N.Z. Mollusca, p. 89, (1880).

Habitat.—Wellington to Dunedin.

Shell solid and depressed; the interior margin usually brown, rayed with white at the ribs, which vary in number from eight to more than twenty. Radula with a pair of marginal teeth on each side.

This species appears to be allied to *A. rugosa*, Quoy and Gaimard, from Amboina. The dentition is figured in Trans. N.Z. Institute, XV., pl. 15, fig. 1.

ACMÆA CINGULATA. Hutton, N.Z. Journal of Science, I., p. 477 (1883).

Habitat.—Dunedin and Lyttelton.

Shell solid, white, with about 30 to 50 low radiating ribs; interior white, the margin light brownish pink banded with white. Radula without marginal teeth, the three laterals arranged in an oblique line.

The dentition is figured in Trans. N.Z. Institute, XVI., pl. X., fig. 5.

ACMÆA RUBIGINOSA. Hutton, Cat. Marine Moll. of New Zealand, p. 42, (1873).

Habitat.—Chatham Islands.

* The following species is omitted as not inhabiting New Zealand:—
Patella cantharus, Reeve; inhabits Tasmania.

Shell rather thin, with 12 to 20 primary ribs, and shorter secondary ribs between them; interior pinkish, rayed throughout with white under the ribs.

Dr. von Martens thinks that this may be *Patella lacunosa*, Reeve. The animal and dentition are unknown.

Perhaps *Patella campbelli*, Filhol, (Comptes Rendus, XCI., p. 1095, 1880), may be this species but the diagnosis is not sufficient for identification.

ACMÆA CONOIDEA. Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 355, pl. 71, figs. 5-7,, (1834); Gray Figs. Moll. Anim. pl. 114, fig. 2.

Habitat.—Banks' Peninsula.

Shell smooth, thin, small, conical, high, the apex rounded. Brown, sometimes with white radiating bands.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 15, fig. k.

B. Apex of shell anterior.

ACMÆA PILEOPSIS. Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 359, pl. 71, figs. 25-27, (1834). *Patelloides antarctica*, Hombron and Jacquinot, Ann. des Sci. Nat. Sec. 2, vol. 16, p. 190, (1841).

Habitat.—Bay of Islands to Banks' Peninsula, Auckland Islands.

Shell solid, smooth, with radiating striæ, convex, the apex recurved. Blackish, mottled with white, the interior bluish with a black margin.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 15, fig. m.

ACMÆA FLAMMEA. Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 354, pl. 71, figs. 15-24, (1834); Gray, Figs. Moll. Anim. pl. 114, fig. 5.

Habitat.—Auckland to Dunedin. Found also in Tasmania.

Shell thin, pellucid, depressed, small, radiately striated. Yellow, marked with brown.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 15, fig. n.

ACMÆA FRAGILIS. Chemnitz, Conch. Cab. XI., fig. 1921, (1790); Quoy and Gaimard, Voy. Astrolabe, Zool. III. p. 351, pl. 71, figs. 28-30 (1834); Gray, Figs. Moll. Anim. pl. 114, fig. 7. *Patella unguis-almeæ*, Lesson, Voy. Coquille, Zool. II., p. 420, (1830). *Patella solandri*, Colenso, Tasmanian Journal of Science, 1844.

Habitat.—Auckland to Dunedin.

Shell thin, depressed, the apex marginal. Green with concentric brown bands.

The dentition is not known.

Family. PATELLIDÆ*

Genus. PATINELLA. Dall.

Shell solid, the apex sub-central or anterior. Branchial wing interrupted in front.

Radula with a central plate, two laterals and one or two rows of rudimentary marginals on each side. Mouth entire below; margin of the mantle fringed.

I have altered the characters of this genus (which is founded on *P. magellanica*) so as to include all our Patellas, as they are evidently closely related.

PATINELLA STRIGILIS. Hombron and Jacquinot, Ann. des Sci. Nat. Zool. Series 2, vol. 16, p. 190, (1841). *P. magellanica*, Manual of N.Z. Mollusca, (1880).

Habitat.—Banks' Peninsula to Shag Point, Otago. Auckland Islands, Campbell Island.

Shell large, solid, obliquely conical, high, with about 20-30 low radiating ribs; the apex sub-central or rather anterior. Brown, obscurely marked with yellowish; interior greenish or yellowish-brown above the muscular impression, bluish-white and iridescent below it, the margin brown.

* The following species are omitted as not really inhabiting New Zealand:—

Patella granularis, Linn.; inhabits South Africa

Patella cochlear, Born.; inhabits South Africa

Patella stella, Lesson; Habitat not known.

This is probably a variety of *P. cenea* (Martyn), or of *P. magellanica* (Martyn). *P. fuegensis* (Reeve), and *P. Kerguelensis* (Smith), are scarcely different.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 16, fig. A.

PATINELLA REDIMICULUM. Reeve, Conch. Icon. fig. 50, (1854);
Voy. Erebus and Terror, Moll. pl. 1, fig. 24. *P. radians*,
Reeve, Conch. Icon. fig. 25, [not of Gmelin]. *P. pottsii*,
Hutton, Cat. Marine Moll. of New Zealand, 44, (1873).

Habitat.—The southern portions of New Zealand and the Auckland Islands. Found also in Fuegia.

Shell large, depressed, with about 20 or 25 rounded ribs; the apex anterior; the interstices between the ribs bluish white.

Probably a variety of the last species. The dentition is not known.

PATINELLA DENTICULATA. Martyn, Univ. Conch. pl. 65, (1784).
P. margaritacea, Chemnitz, Conch. Cab. XI., fig. 1914,
(1790); Voy. Erebus and Terror, Moll. pl. 1, fig. 26. *P. ornata*, Dillyyn, Catal. Shell, p. 1029; Deshayes, Anim. sans Vert. 2nd edition, VII., p. 542. *P. nodosa*, Hombron and Jacquinot, Ann. des Sci. Nat. Zool. Series 2, vol. 16, p. 191, (184).

Habitat.—Throughout New Zealand.

Shell more or less depressed, with the apex anterior, generally about one fourth of the length from the anterior end. With eleven reddish yellow ribs, alternating with smaller and dark coloured ribs, which are spotted with white.

The dentition is figured in the Trans. N.Z. Institute, XV., pl. 16, fig. B.

PATINELLA INCONSPICUA. Gray in Dieffenbach's New Zealand, II., p. 244, (1843). *P. luctuosa*, Gould, Pro. Bost. Soc. Nat. Hist. II., p. 150, (1846) [not of Hombron and Jacquinot, (1841)].

Habitat.—Wellington to Dunedin.

Shell conical, high, the height often more than half the length; apex sub-central. Interior brown, with about twelve radiating white stripes.

This species passes into the last, and should perhaps be considered a variety of it.

PATINELLA REEVEI. Hutton, Man. of New Zealand Mollusca, p. 108, (1880). *P. imbricata*, Reeve, Conch. Icon. fig. 92, (1854), [not of Linné].

Habitat.—Wellington to Dunedin.

Apex anterior; ribs numerous, with imbricating scales. Colour dark blue black, or brownish.

The animal and dentition are unknown.

PATINELLA ILLUMINATA. Gould, Otia Conchologica, p. 7, (1846).

Habitat.—Auckland Islands, Campbell Island, Macquarie Island.

Like the last species but browner, and more or less marked with yellowish. Apex one fourth of the length from the anterior end. Ribs 30 to 40.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 16, fig. c. Perhaps *Patella terroris*, Filhol, (C. R. XCI., 1880) may be this species, but the diagnosis is not sufficient for identification.

PATINELLA EARLII. Reeve, Conch. Icon. fig. 71, (1854). *P. flexuosa*, Hutton, Cat. Marine Moll. of New Zealand. p. 45, (1873), [not of Quoy and Gaimard].

Habitat.—Stronghurst, Canterbury.

Ribs few and small, or none. Pale yellowish with deeply waved concentric brown lines.

Animal and dentition unknown.

PATINELLA RADIANS. Gmelin in 13th ed. of Syst. Nat. p. 3720, *P. radiata Novæ Zealandiæ*, Chemnitz, Conch. Cab. X. fig. 1618, (1788). *P. argyropsis*, Lesson, Voy. Coquille, Zool., II., p. 419, (1830). *P. argentea*, Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 345, pl. 70, figs. 16-17, (1834), [not

of Linné]. *P. radiatilis*, Hombron and Jacquinot, Ann. des Sci. Nat. Series 2, vol. 16, p. 191, (1841). *P. decora*, Philippi, Zeitschrift Malak. 1848, p. 162; Reeve, Conch. Icon. fig. 33.

Habitat.—Throughout New Zealand. Its occurrence in Australia is doubtful.

Depressed, with about 20 ribs larger than the rest; apex one fourth of the length from the anterior end. Olive brown, blotched with paler.

The dentition is figured in Trans. N.Z. Institute, XV., pl. 16, fig. E.

Variety OLIVACEA. Hutton, Trans. N.Z. Inst. XV., p. 133, (1883).

Habitat.—Dunedin to the Bluff.

Ribs fine and uniform; apex one third to one fourth of the length from the anterior end. Uniform olive brown, with a black band round the margin.

The dentition is figured in the Trans. N.Z. Institute, XV., pl. 16, fig. D.

Variety PHOLIDOTA. Lesson, Voy. Coquille, Zool. II., p. 420, (1830). *P. sturnus*, Hombron and Jacquinot, Ann. des Sci. Nat. Series 2, vol., 16, p. 191, (1841). *P. floccata*, Reeve, Conch. Icon. fig. 106, (1854).

Habitat.—Throughout New Zealand.

Ribs small and uniform; apex very anterior, about one seventh of the length from the anterior end. Olive brown, largely blotched with white; or white with brown radiating bands.

PATINELLA TRAMOSERICA. Martyn, Univ. Conch. pl. 16, (1784); Reeve, Conch. Icon. fig. 27. *P. antipodum*, Smith, Voy. Erebus and Terror, Moll. p. 4, pl. 1, fig. 25, (1874.)

Habitat.—Wellington. Found also in New South Wales.

Depressed, finely radiately ribbed. Orange yellow with narrow black rays.

The animal and dentition are not known.

PATINELLA FLAVA. Hutton, Cat. Marine Moll. of New Zealand, p. 44, (1873).

Habitat.—Poverty Bay, to Stronghurst, Canterbury.

Conical, high, radiately ribbed. Pale yellow or orange without marks.

The animal and dentition are unknown.

PATINELLA STELLIFERA. Chemnitz, Conch. Cab. X., fig. 1617, (1788). *P. stellularia*, Quoy and Gaimard, Voy. Astrolabe, Zool. III., p. 347, pl. 70, figs. 18-20, (1834). Reeve, Conch. Icon. fig. 96.

Habitat.—Cook's Straits to Banks' Peninsula. Found also at the Friendly Islands.

Depressed, finely radiately ribbed. Reddish brown with radiating white stripes.

The animal and dentition are unknown.

As the Patellas are variable and not easy to make out I add a key to the species.

Colour brown.

Interior with 11 or 12 rays.

Exterior with dark white spotted ribs .. *denticulata*.

Exterior without dark ribs *inconspicua*.

Interior not rayed.

Large and solid.

Exterior all brown *strigilis*.

Exterior bluish white between the ribs *redimiculum*.

Medium and thinnish.

Smooth, usually with whitish marks .. *radians*.

Rough and scaly *reevei*

Colour red or yellow.

With numerous waved concentric brown lines *earlii*

With radiating black stripes *tramoserica*.

With radiating white stripes *stellifera*.

Without markings *flava*.